

Geometry B Live Lesson Class

U4L3 – Rotations (Ch. 9-3 in textbook)



Agenda



1. Review topics and problems from Unit 4, Lesson 3 – Rotations.

2. Use the 2-column note system to take better notes in math class. Bring your math notebook and pen or pencil to each math LiveLesson class.

2-Column Notes Template



1. Announcements/To Do's
2. School-Wide Learner Outcomes
3. LL Objectives
4. Vocabulary words
5. Problems
6. Summary (End of class)

1. Write down important details.
2. What are you going to work on this week?
- 3.
4. Definitions (fill in as we go)
5. Steps to solving problems
6. 1 or 2 sentences about the LL class.

Reminders and To – Do's



Information

1. Complete 1 math lesson per day.
2. Check your WebMail every day
3. Be prepared to spend 4 - 6 hours per day on schoolwork.
4. Remind your Learning Coach to take daily attendance

What to do

1. Go to your Planner in Connexus to find the math lesson for the day
2. Go to Connexus to find WebMail
3. Complete lessons for the day from your Planner. Do not get behind on lessons.
4. Have your Learning Coach log into Connexus daily.

Reminders and To – Do's



Information

5. Go to the Message Board first for information about our math class.

6. Contact Mr. Elizondo for math questions.

Remember: You need at least 2 phone calls with Mr. Elizondo per semester.

What to do

6. Call (559) 549 - 3244 and leave a voicemail if call is not answered.

Make an appointment at:
<https://elizondo.youcanbook.me>

Send a WebMail

U4L3 – California Common Core State Standards



- HSG-CO.A.4: Develop definitions of rotations, reflections, and translations in terms of angles, circles, perpendicular lines, parallel lines, and line segments.
- HSG-CO.B.6: Use geometric descriptions of rigid motions to transform figures and to predict the effect of a given rigid motion on a given figure; given two figures, use the definition of congruence in terms of rigid motions to decide if they are congruent.
- HSG-CO.A.2: Represent transformations in the plane using, e.g., transparencies and geometry software; describe transformations as functions that take points in the plane as inputs and give other points as outputs. Compare transformations that preserve distance and angle to those that do not (e.g., translation versus horizontal stretch).
- HSG-CO.A.5: Given a geometric figure and a rotation, reflection, or translation, draw the transformed figure using, e.g., graph paper, tracing paper, or geometry software. Specify a sequence of transformations that will carry a given figure onto another.

U4L3 – Objectives



- Draw and identify rotation images of figures

- How do you calculate the angle of rotation about a specific point?

U4L3 – Vocabulary Words



- angle of rotation
- center of a regular polygon
- center of rotation
- rotation

U4L3 – Concept Corner - Rotations



take note

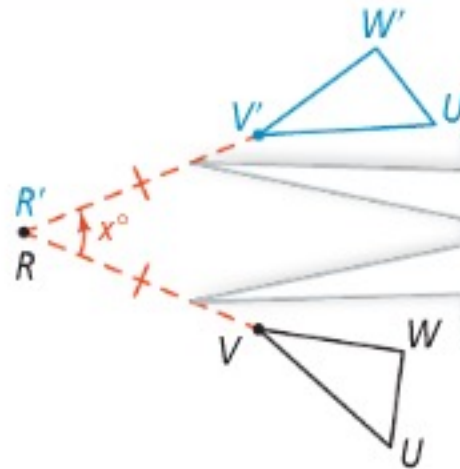
Key Concept Rotation About a Point

A **rotation** of x° about a point R , called the **center of rotation**, is a transformation with these two properties:

- The image of R is itself (that is, $R' = R$).
- For any other point V , $RV' = RV$ and $m\angle VRV' = x$.

The positive number of degrees a figure rotates is the **angle of rotation**.

A rotation about a point is an isometry.



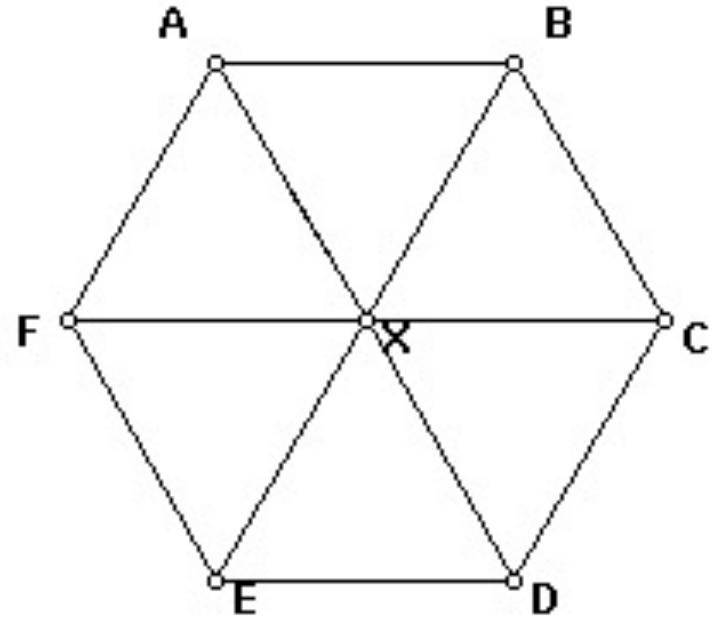
The preimage V and its image V' are equidistant from the center of rotation.

Rotations are made in a **counter-clockwise** direction!!

U4L3 – Key Words



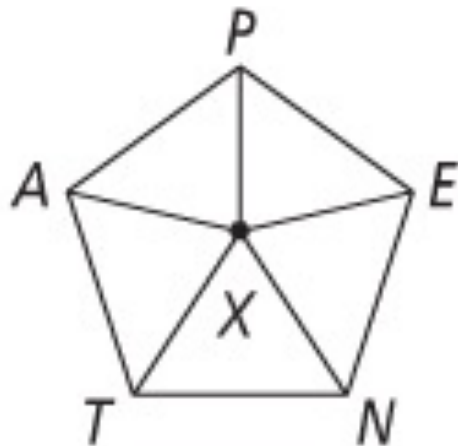
- The **center of a regular polygon** is the point that is equidistant from its vertices.



U4L3 – Practice Problems – Rotations



Point X is the center of regular pentagon PENTA.



The measure of each of the 5 congruent angles is $360/5 = 72$ degrees.

1) What is the image of E after a 144-degree rotation about X?

The image of E is A.

2) What is the image of \overline{TN} after a 216-degree rotation about X?

The image of TN is PA.

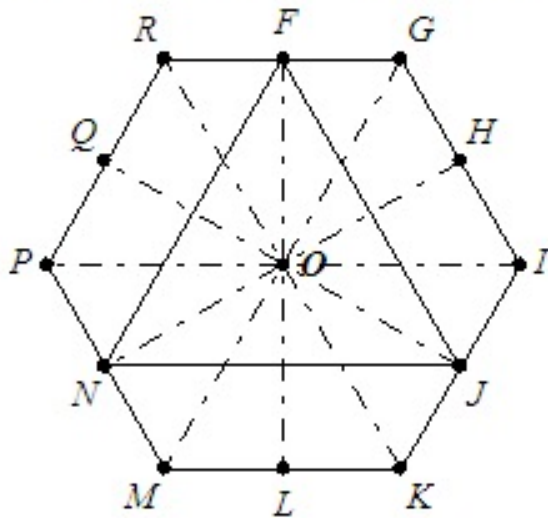
3) What is the image of T after a 72-degree rotation about X?

The image of T is N.

U4L3 – Practice Problems – Rotations



The hexagon GIKMPR and FJN are regular. The dashed line segments form 30-degree angles.



1. What is the image of point G after a 120° rotation about point O?

The image of G is P.

2. What is the degree of rotation that maps point N to point K?

90 degrees. N to M is 30 degrees, M to L is 30 degrees and L to K is 30 degrees.

3. What is the degree of rotation that maps \overline{QR} to \overline{LM} ?

120 degrees.

U4L3 – To Know for the Quiz



-
- Naming corresponding parts (preimage and image)
 - Finding the image after a translation
 - Writing a translation rule when given points
 - Describing translation rules in words
 - Compositions of translations
 - Finding the image after a reflection (in the coordinate plane)
 - Compositions of reflections
 - Finding the image after a rotation (regular polygon)
 - Finding the degree of rotation

U4L3 – Reflection



How do you calculate the angle of rotation about a specific point?

You can calculate the angle of rotation by drawing a line from the preimage to the center of rotation and another line from the image to the center of rotation. The angle between these two lines is the angle of rotation.

Questions?



- Check the Message Board first
- Send a WebMail
- You can also make an appointment at <https://elizondo.youcanbook.me>
- You can also call me at (559) 549-3244. If I'm not available to answer your call, please leave a voicemail with your full name and phone number.